

FORM PTO-1390 REV. 5-93		US DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEYS DOCKET NUMBER <b>P98,3211</b>
<b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>			U.S. APPLICATION NO. (if known, see 37 CFR 1.5) <b>09/254101</b>
INTERNATIONAL APPLICATION NO. <b>PCT/DE97/01730</b>	INTERNATIONAL FILING DATE <b>13 August 1997</b>	PRIORITY DATE CLAIMED <b>30 August 1996</b>	
TITLE OF INVENTION <b>METHOD FOR INCORPORATING FUNCTIONS OF AN AUTOMATIC CALL DISTRIBUTION SYSTEM INTO AN INTERACTIVE VOICE ANSWERING SYSTEM</b>			
APPLICANT(S) FOR DO/EO/US <b>Reinhard Knitl et al.</b>			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay. 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. <input checked="" type="checkbox"/> A copy of International Application as filed (35 U.S.C. 371(c)(2)) a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US) 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)) 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. §371(c)(3)) a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). <b>EXECUTED</b> 10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). <b>Items 11. to 16. below concern other document(s) or information included:</b> 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98; (PTO 1449, Prior Art, Search Report) 12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included. (SEE ATTACHED ENVELOPPE) 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input checked="" type="checkbox"/> Other items or information: a. <input checked="" type="checkbox"/> Submission of Drawings Figs. 1-3 on 2 sheets b. <input checked="" type="checkbox"/> EXPRESS MAIL #EL253252531US dated 3-1-99			

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.5)		INTERNATIONAL APPLICATION NO. <b>PCT/DE97/01730</b>		ATTORNEY'S DOCKET NUMBER <b>P98,3211</b>	
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<b>17. <input checked="" type="checkbox"/> The following fees are submitted:</b>  <b>BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):</b> Search Report has been prepared by the EPO or JPO ..... \$840.00  International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) .. \$720.00  No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but international search fee paid to USPTO (37 C.F.R. 1.445(a)(2)) ..... \$790.00  Neither international preliminary examination fee (37 C.F.R. 1.482) nor international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO ..... \$1070.00  International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) ..... \$ 98.00  <div style="text-align: right;"><b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b></div>				CALCULATIONS		PTO USE ONLY	
				\$ 840.00			
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 C.F.R. 1.492(e)).				\$			
Claims	Number Filed	Number Extra	Rate				
Total Claims	16 - 20 =	0	X \$ 18.00	\$			
Independent Claims	1 - 3 =	0	X \$ 78.00	\$			
Multiple Dependent Claims			\$260.00 +	\$			
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$ 840.00			
Reduction by ½ for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 C.F.R. 1.9, 1.27, 1.28)				\$			
<b>SUBTOTAL =</b>				\$ 840.00			
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$			
<b>TOTAL NATIONAL FEE =</b>				\$ 840.00			
Fee for recording the enclosed assignment (37 C.F.R. 1.21(h). The assignment must be accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). \$40.00 per property				\$			
<b>TOTAL FEES ENCLOSED =</b>				\$ 840.00			
				Amount to be refunded	\$		
				charged	\$		

a. ☒ A check in the amount of \$ 840.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees.  
A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any  
overpayment to Deposit Account No. 08-2290. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be  
filed and granted to restore the application to pending status.

**SEND ALL CORRESPONDENCE TO:**

**Hill & Simpson**  
**A Professional Corporation**  
**85th Floor Sears Tower**  
**Chicago, Illinois 60606**

\_\_\_\_\_  
**SIGNATURE**

\_\_\_\_\_  
**William E. Vaughan**  
**NAME**

\_\_\_\_\_  
**39,056**  
**Registration Number**

300 Rec'd PCT/PTO 01 MAR 1999

BOX PCT

IN THE UNITED STATES ELECTED OFFICE  
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE  
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

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**PRELIMINARY AMENDMENT**

APPLICANTS: Reinhard Knitl et al. DOCKET NO: P98,3211

SERIAL NO: GROUP ART UNIT:

EXAMINER:

10

INTERNATIONAL APPLICATION NO: PCT/DE97/01730

INTERNATIONAL FILING DATE: 13 August 1997

INVENTION: **METHOD FOR INCORPORATING FUNCTIONS OF AN  
AUTOMATIC CALL DISTRIBUTION SYSTEM INTO AN  
INTERACTIVE VOICE ANSWERING SYSTEM**

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Assistant Commissioner for Patents,  
Washington, D.C. 20231

Sir:

20

Please amend the above-identified International Application before  
entry into the National stage before the U.S. Patent and Trademark Office  
under 35 U.S.C. §371 as follows:

**In The Specification:**

Please cancel page 1.

25

On page 2, cancel lines 1-3 and substitute therefor:

**--S P E C I F I C A T I O N****TITLE**

**METHOD FOR INCORPORATING FUNCTIONS OF AN AUTOMATIC  
CALL DISTRIBUTION SYSTEM INTO AN INTERACTIVE VOICE**

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**ANSWERING SYSTEM****BACKGROUND OF THE INVENTION****Field of the Invention**

The present invention relates to an interactive voice response system which is coupled to an automatic call distribution system wherein communication terminal equipment communicates a request for reserving an available agent to the automatic call distribution system and the communication terminal equipment is transferred to the reserved agent communication terminal equipment.

**Description of the Prior Art--**

On page 2, line 4, cancel the "-" and substitute therefor a --(--.

On page 2, line 5, cancel "unit" and substitute therefor --units--.

On page 2, line 5, cancel "the" and substitute therefor --this--.

On page 2, line 5, cancel the "-" and substitute therefor a --)--.

On page 2, line 5, cancel the "," and substitute therefor a --;--.

On page 2, line 6, insert a --,-- after "particularly".

On page 2, lines 10-11, cancel "for example" and substitute therefor --such as--.

On page 2, line 12, cancel ", respectively,".

On page 2, line 14, cancel ", respectively,".

On page 2, line 14, insert --pieces of-- before "information".

On page 2, line 17, insert a --,-- after "equipment".

On page 2, line 17, cancel ", respectively,".

On page 2, line 18, insert a --,-- after "subscriber".

On page 2, line 19, insert --also-- after "systems".

On page 2, line 20, cancel the "," and substitute therefor a --;--.

On page 2, line 20, insert a --,-- after "particularly".

On page 2, line 23, cancel "are" and substitute therefor --is--.

On page 2, line 24, cancel "for example" and substitute therefor --such as--.

On page 2, line 26, cancel "and a" and substitute therefor --wherein--.

On page 2, line 26, cancel "therein".

On page 3, line 1, cancel "a" and substitute therefor --the--.

On page 3, line 3, cancel "a".

On page 3, cancel lines 7-9 and substitute the following therefor:

5           --US-A-5,164,981 discloses an interactive voice response system  
that is connected both to a communication system as well as to a data  
exchange. Operator terminals, to which a list of connection information that  
was determined by the voice response system in the connection setup of an  
incoming call is communicated with the assistance of a switching equipment,  
10           are connected to the data exchange.

          The publication by M. Stahl, Dialogic's AMX/81 Family of Audio  
Multiplexer Products", Speech Technology, MAN-MACHINE VOICE  
COMMUNICATIONS, 1987, discloses a system configuration wherein an  
incoming call is first communicated to a voice response system. An  
15           automatic call distribution system is connected to this voice response system  
wherein this call distribution system is not connected to a communication  
system. Potentially under the control of the voice response system, the  
incoming calls are forwarded to the automatic call distribution system or,  
respectively, to the connected agents or agent communication terminal  
20           equipment.

          US-A-5,546,452 discloses a communication system whereby  
interactive voice response systems are connected to a central controller that  
is connected to a communication network. Incoming calls are thereby sent  
by the central controller to available interactive voice response units and are  
25           processed thereat.--

On page 3, before line 10, insert the following centered heading:

**--SUMMARY OF THE INVENTION--**

On page 3, line 10, cancel "The critical" and substitute therefor --A  
key--.

5

On page 3, line 10, cancel "to be seen therein".

On page 3, line 12, cancel "such".

On page 3, line 12, cancel "a".

On page 3, line 13, insert --such-- after "equipment".

On page 3, line 15, cancel "from this".

On page 3, line 15, cancel "a" before "reservation" and substitute therefor --the--.

On page 3, line 16, cancel ", respectively,".

On page 3, line 20, cancel "thus" and substitute therefor --therefore--

10

On page 3, line 20, cancel "a" and substitute therefor --the--.

On page 3, line 23, cancel "an" before "agent" and substitute therefor --the--.

On page 3, line 24, cancel ", respectively, an".

15

On page 4, line 1, cancel "Advantageously" and substitute therefor --Preferably--.

On page 4, line 2, cancel ", whereby" and substitute therefor --wherein--.

On page 4, line 4, cancel "- claim 2".

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On page 4, line 4, insert --the-- after "Given".

On page 4, lines 5-6, cancel "- for example" and substitute therefor --( say--.

On page 4, line 6, cancel the "-" and substitute therefor a --)--.

On page 4, line 14, cancel "- claim 4".

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On page 4, line 19, cancel "a" and substitute therefor --the--.

On page 4, line 21, cancel ", this" and substitute therefor --. This--.

On page 4, line 22, cancel ", for example,".

On page 4, line 22, cancel "depositing" and substitute therefor --deposits--.

On page 4, lines 23, 24, cancel "- insofar as an agent or, respectively, agent communication terminal equipment is available-".

On page 4, line 25, insert a --,-- after "equipment".

On page 4, line 25, cancel "arbitrary".

On page 4, line 26, insert --arbitrary-- before "communication".

On page 4, line 27, insert a --,-- after "system".

On page 5, line 1, cancel "advantageous development" and substitute therefor --embodiment--.

On page 5, line 1, insert --present-- before "invention".

On page 5, line 3, cancel ", respectively,".

On page 5, line 4, cancel ", respectively,".

On page 5, line 6, cancel ", respectively,".

On page 5, lines 6-7, cancel "- claim 4".

On page 5, lines 7-8, cancel ", respectively,".

On page 5, line 9, cancel "a".

On page 5, line 12, cancel "Advantageously" and substitute therefor --Preferably--.

On page 5, line 15, cancel "- claim 5".

On page 5, line 17, cancel "whereby" and substitute therefor --wherein--.

On page 5, line 19, cancel "advantageous development" and substitute therefor --embodiment--.

On page 5, line 19, insert --present-- before "invention".

On page 5, line 21, cancel ", respectively,".

On page 5, line 25, cancel ", respectively,".

On page 5, line 26, cancel ", whereby" and substitute therefor --. As such,--.

On page 5, line 26, cancel ", respectively,".

On page 5, line 29, cancel "- claim 6".

On page 6, line 3, cancel "Advantageously" and substitute therefor --Preferably--.

On page 6, line 4, cancel "- claim 7".

On page 6, line 4, cancel "or, respectively,".

On page 6, line 5, insert a --,-- after "request".

On page 6, line 5, cancel ", respectively," and substitute therefor --an--.

On page 6, line 5, cancel "also".

On page 6, line 5, cancel "a".

On page 6, line 7, cancel ", respectively,".

On page 6, line 9, cancel "a".

On page 6, line 10, cancel ", respectively,".

On page 6, line 11, cancel "- claim 8".

On page 6, line 12, cancel ", respectively,".

On page 6, line 13, cancel "as well as" and substitute therefor --or--.

On page 6, line 16, cancel "request" after "reservation" and substitute therefor --requests--.

On page 6, line 16, cancel "request" after "enable" and substitute therefor --requests,--.

On page 6, line 17, insert a --,-- after "acknowledgments".

On page 6, line 17, cancel "described in patent claims 9-16" and substitute therefor --contemplated as alternative embodiments--.

On page 6, line 20, cancel "may be derived from claims 17 and 18" and substitute therefor --are also considered in yet further embodiments of the present invention--.

On page 6, cancel lines 21-24 and substitute the following therefor:

--Additional features and advantages of the present invention are described in, and will be apparent from, the Detailed Description of the Preferred Embodiments and the Description of the Drawings.



**DESCRIPTION OF THE DRAWINGS--**

On page 6, line 25, insert --shows-- after "Figure 1".

On page 6, line 25, cancel "inventive".

On page 6, line 25, cancel "shown" and substitute therefor --of the present invention--.

On page 6, line 25, cancel "a".

On page 6, line 25, cancel "circuit".

On page 6, line 26, insert --form-- after "diagram".

On page 6, line 26, cancel the ";" and substitute therefor a ---.

On page 6, line 27, insert --shows-- after "Figure 2".

On page 6, line 27, cancel "shown".

On page 6, line 28, cancel "a".

On page 6, line 28, cancel "circuit".

On page 6, line 28, insert --form-- after "diagram".

On page 6, line 28, cancel the ";" and substitute therefor a ---.

On page 6, line 29, insert --shows-- after "Figure 3".

On page 6, line 29, cancel "shown".

On page 6, line 29, insert --the form of-- after "in".

On page 7, before line, insert the following centered heading:

**--DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS--**

On page 7, line 1, cancel "an inventive" and substitute therefor --a--.

On page 1, line 35, cancel "on" and substitute therefor --"ON"--.

On page 7, line 1, insert --of the present invention-- before "wherein".

On page 7, line 3, cancel "is" and substitute therefor --are--.

On page 7, line 3, cancel ", whereby the" and substitute therefor --.

The--.

On page 7, line 5, insert --ACD-- before the ".".

On page 7, line 7, cancel "whereby" and substitute therefor --  
wherein--.

On page 7, line 9, cancel ", whereby" and substitute therefor --such  
that--.

5 On page 7, line 14, insert a --,-- after "ST".

On page 7, line 15, insert a --,-- after "realized".

On page 7, line 15, insert --an-- after "as".

On page 8, line 2, insert a --,-- after "is".

On page 8, line 2, insert a --,-- after "turn".

10 On page 8, line 10, cancel "the" and substitute therefor --an--.

On page 8, line 11, cancel the "-" and substitute therefor a --;--.

On page 8, line 11, insert a --,-- after "example".

On page 8, line 12, cancel the "-".

On page 8, line 15, cancel the ", " and substitute therefor a --;--.

15 On page 8, line 15, insert a --,-- after "i.e.". RECEIVED OCT 10 1960

On page 9, line 9, cancel ", whereby" and substitute therefor --. As  
such,--.

On page 9, line 11, cancel the "-" and substitute therefor --, as--.

On page 9, line 12, cancel "a" and substitute therefor --the--.

20 On page 9, line 15, cancel "are" and substitute therefor --is--.

On page 9, line 18, cancel "is" and substitute therefor --it--.

On page 9, line 19, cancel "an" and substitute therefor --the--.

On page 9, line 20, cancel ", respectively,".

On page 9, line 20, insert a --,-- after "subscriber".

25 On page 9, line 21, cancel ", respectively,".

On page 9, line 23, cancel ", respectively,".

On page 9, line 25, cancel the "-" before "for" and substitute therefor  
an --(--.

On page 9, line 25, cancel the "-" after "20" and substitute therefor a --)--.

On page 10, line 1, cancel "What these messages effect is described in a following chapter."

5 On page 10, line 2, cancel "references" and substitute therefor --referenced--.

On page 10, line 3, cancel the "," after "available".

On page 10, line 3, cancel ", respectively, a".

10 On page 10, line 6, cancel ", to which end" and substitute therefor --. Pursuant to this,--.

On page 10, line 8, cancel the "-" and substitute therefor a --;--.

On page 10, line 12, cancel ", respectively,".

On page 10, line 13, cancel the "-" and substitute therefor a --;--.

On page 10, line 16, cancel ", respectively, an".

15 On page 10, line 20, cancel ", respectively,".

On page 10, line 21, cancel "comprise" and substitute therefor --include--.

On page 10, line 21, cancel ", respectively,".

20 On page 10, line 24, cancel "A version" and substitute therefor --Version--.

On page 10, line 24, insert --optionally-- before "can".

On page 10, line 24, cancel "optionally".

On page 10, line 25, cancel ", this indicating" and substitute therefor --which indicates--.

25 On page 10, lines 28, 29, cancel ", respectively,".

On page 10, line 29, insert --either-- after "interpretation of".

On page 10, line 29, cancel ", respectively, of".

On page 11, lines 1-2, cancel ", respectively,".

On page 11, line 2, cancel ", respectively,".

On page 11, line 3, cancel the “,” before “i.e.” and substitute therefor an --(--.

On page 11, line 3, insert a --,-- after “i.e.”.

On page 11, line 4, cancel the “,” after “ACD” and substitute therefor a --)---.

On page 11, line 5, cancel “, respectively,”.

On page 11, line 6, cancel “, respectively,”.

On page 11, line 10, cancel “, respectively, of”.

On page 11, line 12, cancel “comprises” and substitute therefor -- includes--.

On page 11, line 16, cancel “, respectively,”.

On page 11, line 18, cancel the “(“.

On page 11, line 18, cancel the “)“.

On page 11, line 22, insert --, likewise,-- after “and”.

On page 11, line 23, cancel “that”.

On page 11, line 23, cancel “likewise”.

On page 11, line 23, insert --whether-- before “the”.

On page 11, line 25, cancel “long” and substitute therefor --long”.

On page 11, line 27, cancel “long” and substitute therefor --long”.

On page 12, line 2, cancel “an” before “known” and substitute therefor --a--.

On page 12, line 2, insert --that-- before “was”.

On page 12, line 8, cancel “A” and substitute therefor --The--.

On page 12, line 16, cancel “a” and substitute therefor --the--.

On page 12, line 17, cancel “whereby” and substitute therefor -- wherein--.

On page 12, line 18, insert --themselves-- after “numbers”.

On page 12, line 18, cancel “and” and substitute therefor --such that-

-.

On page 12, line 26, cancel “, respectively,”.

On page 12, line 27, cancel “, respectively,”.

On page 13, line 1, cancel “a status” and substitute therefor --Status-

-.

5

On page 13, line 2, insert a --,-- after “example”.

On page 13, line 4, cancel “the” and substitute therefor --The--.

On page 13, line 4, cancel “, respectively,”.

On page 13, line 5, cancel “a” and substitute therefor --the--.

On page 13, line 7, cancel “the” and substitute therefor --The--.

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On page 13, line 7, cancel “, respectively,”.

On page 13, line 9, cancel “an” and substitute therefor --the--.

On page 13, line 10, cancel “a” and substitute therefor --A--.

On page 13, lines 10-11, cancel “, respectively,”.

On page 13, line 12, cancel “an” and substitute therefor --An--.

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On page 13, line 13, cancel “, respectively,”.

On page 13, line 14, cancel “Further, additional” and substitute therefor --Additional--.

On page 13, lines 18-19, cancel “, respectively,”.

On page 13, lines 19-20, cancel “, respectively,”.

20

On page 13, line 23, cancel “for reserving” and substitute therefor --to reserve--.

On page 13, line 23, cancel “, respectively,”.

On page 14, line 1, cancel “an” and substitute therefor --An--.

On page 14, line 1, cancel “, respectively,”.

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On page 14, lines 2-3, cancel “, respectively,”.

On page 14, line 5, cancel “, respectively,”.

On page 14, line 10, cancel “whereby” and substitute therefor --wherein--.

On page 14, line 12, cancel “A” and substitute therefor --The--.

On page 14, line 13, cancel “, respectively,”.

On page 14, line 15, cancel “laps” and substitute therefor --lapse--.

On page 14, lines 17-18, cancel “, respectively,”.

On page 14, line 22, cancel “are” and substitute therefor --is--.

On page 14, line 23, cancel the “.” and substitute therefor a --:--.

On page 14, line 24, cancel “A result” and substitute therefor --  
Result--.

On page 14, line 25, cancel “, respectively,”.

On page 14, line 27, cancel “A service” and substitute therefor --  
Service--.

On page 15, line 1, cancel “An agent” and substitute therefor --  
Agent--.

On page 15, line 2, cancel “, respectively,”.

On page 15, line 2, insert a --,-- after “AKE”.

On page 15, line 4, cancel “an” and substitute therefor --the--.

On page 15, line 5, cancel “, respectively,”.

On page 15, lines 11-12, cancel “, whereby” and substitute therefor  
--. As such,--.

On page 15, line 12, cancel “or” and substitute therefor --of--.

On page 15, line 13, cancel “, respectively,”.

On page 15, line 16, cancel “a” before “text”.

On page 15, lines 17-18, cancel “, respectively,”.

On page 15, line 18, cancel “a”.

On page 15, line 18, insert --AKE-- after “equipment”.

On page 15, line 22, cancel “are” and substitute therefor --is--.

On page 15, line 23, cancel “, respectively,”.

On page 15, line 25, cancel “a” and substitute therefor --the--.

On page 15, line 25, cancel “an”.

On page 15, line 25, insert a --,-- after “aufi”.

On page 16, lines 6-7, cancel “, respectively,”.

On page 16, line 8, cancel “a”.

On page 16, line 8, insert a --,-- after “si”.

On page 16, line 8, insert a --,-- after “addressed”.

On page 16, line 9, cancel “an”.

On page 16, line 11, cancel “For example, an agent” and substitute therefor --Agent--.

On page 16, line 12, cancel “, for” and substitute therefor --. For--.

On page 16, line 12, insert --is inserted-- after “3”.

On page 16, line 18, cancel “, respectively,”.

On page 16, line 19, cancel “an”.

On page 16, line 25, insert a --,-- after “can”.

On page 16, line 26, insert a --,-- after “nonetheless”.

On page 16, line 28, cancel the “,” and substitute therefor a --;--.

On page 16, line 29, insert a --,-- after “namely”.

On page 17, line 4, cancel the “,” after “KE(X)”.

On page 17, line 5, cancel “whereby” and substitute therefor -- wherein--.

On page 17, line 8, cancel “this”.

On page 17, line 10, cancel “comprised” and substitute therefor -- incorporated--.

On page 17, line 12, cancel “which”.

On page 17, line 13, cancel “, respectively,”.

On page 17, line 19, insert --wherein-- after the “,”.

On page 17, after line 20, insert the following paragraph:

--Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.--

On page 26 (last page), cancel lines 1-3 and substitute the following centered heading therefor:

**--ABSTRACT OF THE DISCLOSURE--**

On page 26, line 4, insert cancel "An" and substitute therefor --A method for incorporating functions of an automatic call distribution system into an interactive voice answering system wherein the--.

On page 26, line 4, cancel "(IVR)".

On page 26, line 5, cancel "(ACD)".

On page 26, line 5, cancel "such".

On page 26, line 5, cancel "a".

On page 26, line 6, cancel "(KE(X))".

On page 26, line 6, insert --such-- before "that".

On page 26, line 6, cancel "this communicates".

On page 26, line 6, cancel "(resa, resq)".

On page 26, line 7, cancel "(A)".

On page 26, line 7, cancel "(ACD)" and substitute therefor --is communicated--.

On page 26, line 7, cancel "a" and substitute therefor --the--.

On page 26, line 8, cancel "(A)".

On page 26, line 8, cancel "(KS)".

On page 26, line 9, cancel "(KE)".

On page 26, line 10, cancel "(AKE)".

On page 26, cancel line 11.

**In the Claims:**

On page 18, cancel line 1 and substitute therefor:

**--We Claim As Our Invention--**

Please cancel claims 1-18, without prejudice, and substitute the following claims therefor:



19. A method for incorporating functions of an automatic call distribution system in an interactive voice response system that is called and controlled by communication terminal equipment of a communication network, the method comprising the steps of:

5 directly coupling the automatic call distribution system and the interactive voice response system;

connecting both the interactive voice response system in the automatic call distribution system to a communication system of the communication network;

10 connecting at least one agent communication terminal equipment to the communication system;

allocating the at least one agent communication terminal equipment to the automatic call distribution system;

15 influencing the interactive voice response system by the communication terminal equipment wherein the interactive voice response system communicates a request for reserving an available one of the at least one agent communication terminal equipment to the automatic call distribution system; and

20 transferring, given the request for reserving the agent communication terminal equipment, the communication terminal equipment to the reserved agent communication terminal equipment.

20. A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 19, further comprising the steps of:

25 providing interfaces to both the interactive voice response system and the automatic call distribution system; and

coupling the respective interfaces of the interactive voice response system and the automatic call distribution system via a local area network.

21. A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 19, further comprising the steps of:

interrogating a status of the agent communication terminal equipment by the interactive voice response system before the request for reserving is communicated; and

implementing the request for reserving dependent on the interrogated status.

22. A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 19, further comprising the steps of:

cyclically interrogating a status of the agent communication terminal equipment by the interactive voice response system before the request for reserving is communicated; and

implementing the request for reserving dependent on the cyclically interrogated status.

23. A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 19, further comprising the steps of:

noting, given an unavailable agent communication terminal equipment, a call back request communicated from an associated communication terminal equipment in the interactive voice response system with telephone number information associated with the communication terminal equipment; and

initiating an automatic call back with assistance from a further request for reserving, wherein a connection to the reserved agent communication terminal equipment is produced and transferred first and a

call back connection to the associated terminal equipment is produced and transferred thereafter.

25. A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 19, further comprising the step of:

providing a request and an acknowledgment for each request for reserving between the interactive voice response system and the automatic call distribution system.

26. A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 25, further comprising the step of:

providing request information associated with the request, the request information including a request function code, version information indicating a current version of the interactive voice response system communicating the request, identification identifying the respective automatic call distribution system, identification identifying the respective interactive voice response system, reference information identifying the request, and at least one request-dependent parameter.

27. A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 25, further comprising the step of:

providing acknowledgment information associated with the request, the acknowledgment information including an acknowledgment function code, version information indicating a current version of the automatic call distribution system communicating the acknowledgment, identification identifying the respective automatic call distribution system, identification

identifying the respective interactive voice response system, reference information identifying the acknowledgment, and at least one acknowledgment-dependent parameter.

5                    28.            A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 19, further comprising the steps of:

                     inserting access protection information in a logon request;  
                     communicating the logon request to log the interactive voice  
10                   response system on at the automatic call distribution system;

                     inserting a check result of the logon request in a logon acknowledgment; and

                     answering the logon request by the automatic call distribution system with the logon acknowledgment.

15                   29.            A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 19, further comprising the steps of:

                     inserting access protection information in a log off request;  
20                   communicating the log off request to log the interactive voice response system off at the automatic call distribution system;

                     inserting a check result of the log off request in a log off acknowledgment; and

                     answering the log off request by the automatic call distribution  
25                   system with the log off acknowledgment.

                     30.            A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 19, further comprising the steps of:

inserting service information, in a status request, indicating a requested agent communication terminal equipment as a parameter; and communicating the status request, which includes the parameter, of the associated automatic call distribution system from the interactive voice response system to the automatic call distribution system.

31. A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 30, further comprising the step of:

communicating a status acknowledgment from the automatic call distribution system after the step of communicating a status request, wherein the status acknowledgment includes at least one of result information indicating a check of allowability of the status request, status information indicating an operating condition of the automatic call distribution system, agent information indicating the agent communication terminal equipment, report information indicating the agent communication terminal equipment, busy information indicating the agent communication terminal equipment, and availability information indicating the availability of the agent communication terminal equipment.

32. A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 19, further comprising the step of:

inserting in the reservation request a parameter which includes at least one of service information requesting an arbitrary agent communication terminal equipment of a group of agent communication terminal equipment, waiting information indicating a time span for waiting for one of a group of agent communication terminal equipment, and status information indicating

one of the reporting and non-reporting of the status of the reservation request.

5                   33.           A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 32, further comprising the step of:

10                   communicating a reservation acknowledgment from the automatic call distribution system after the step of communicating a reservation request, wherein the reservation acknowledgment includes at least one of event information indicating a check of allowability of the reservation request, service information indicating a group of agent communication terminal equipment, telephone number information indicating a telephone number of the agent communication terminal equipment, and agent status information indicating the status of the requested agent communication terminal equipment.

15                   34.           A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 32, further comprising the steps of:

20                   inserting in a release request, as a parameter, an agent identification indicating the agent communication terminal equipment to be released; and

                  communicating the release request from the interactive voice response system to the automatic call distribution system.

25                   35.           A method for incorporating functions of an automatic call distribution system in an interactive voice response system as claimed in claim 19, further comprising the steps of:

                  inserting in a display request a parameter which includes at least one of agent identification identifying a specific agent communication

terminal equipment, information to be displayed at the agent communication terminal equipment, an attention information effecting an attention tone at the affected agent communication terminal equipment; and

communicating the display request from the interactive voice response system to the automatic call distribution system.

#### **REMARKS**

The present amendment makes editorial changes and corrects typographical errors in the specification in order to conform the specification to the requirements of the United States Patent practice. No new matter is added thereby. Original claims 1-18 have been canceled in favor of new claims 19-35. However, claims 19-35 have been presented solely because the revisions by bracketing and underlining which would have been necessary in claims 1-18 in order to conform those claims to the requirements of United States Patent practice would have been too extensive, and thus would have been too burdensome. The cancellation of claims 1-18 does not constitute an intent on the part of the Applicants to surrender any of the subject matter of claims 1-18.

Early consideration on the merits is respectfully requested.

Respectfully submitted,

  
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**METHOD FOR INVOLVING FUNCTIONS OF AN AUTOMATIC CALL  
DISTRIBUTION SYSTEM INTO AN INTERACTIVE VOICE  
ANSWERING SYSTEM**

Interactive voice answering systems - known as interactive voice response unit in the technical field - can be connected to communication systems, particularly large private communication systems. An interactive voice response system is disclosed, for example, by European Patent Application 0 611 135 A1. A voice response system can be called and controlled by arbitrary communication terminal equipment connected to the communication system or communication terminal equipment switched via further communication systems. Information, for example digitalized voice information about articles of a concern, are usually controlled or, respectively, called in the interactive voice response system dependent on the inputs of the calling communication terminal equipment. Thus, for example, one of a plurality of offered or, respectively, callable information can be selected by a keyboard input or a voice input. The selected information is automatically forwarded as voice information from the voice response system to the calling communication terminal equipment or, respectively, the calling subscriber and is acoustically reproduced thereat.

Further, automatic call distribution systems can be connected to communication systems, particularly private communication systems. An automatic call distribution system is disclosed, for example, by DE 195 35 540 A1. Agent communication terminal equipment connected to the communication system are allocated to an automatic call distribution system. Incoming calls having a prescribed telephone number, for example a group telephone number, are forwarded to the automatic call distribution system by the communication system and a free agent communication terminal equipment therein is identified. The automatic call distribution system subsequently influences the communication system in such a way that the incoming call is transferred over to the free agent communication terminal equipment.



Given calls to an interactive voice response system by a communication terminal equipment of the communication network, situations occur due to the limited scope of the voice response unit wherein a calling communication terminal equipment or, respectively, a calling subscriber does not receive the desired information. In these cases, it would be advantageous to involve a person - referred to below as agent - into the respective connection who can provide the information.

The object underlying the invention is comprised in involving functions of an automatic call distribution system into an interactive voice response system. This object is achieved by the features of patent claim 1.

The critical aspect of the inventive method is to be seen therein that the interactive voice response system and the automatic call distribution system are directly coupled, and the interactive voice response system is influenced such by a calling communication terminal equipment that a request for reserving an available agent or, respectively, agent communication terminal equipment is communicated from this to the automatic call distribution system. Given a reservation of a requested agent or, respectively, agent communication terminal equipment by the automatic call distribution system, the allocated communication system can be influenced such that the affected communication terminal equipment is transferred to the available agent communication terminal equipment. With the assistance of the inventive method, thus, connections that a communication terminal equipment of the communication network has set up to an interactive voice response system are transferred with the assistance of the communication system insofar as the request for reserving an agent communication terminal equipment yields that an available agent or, respectively, an agent communication terminal equipment was capable of being reserved. As a result of the direct coupling of the interactive voice response system and of the automatic call distribution system, the request for reserving an available agent can be implemented without influencing the communication system; only the transfer of the already existing connection is implemented by the communication system.

Advantageously, the interactive voice response system and the automatic call distribution system are coupled via a local network, whereby interfaces for connection to the local network are provided in the interactive voice response system and in the automatic call distribution system - claim 2. Given employment of a local network, for example, a plurality of interactive voice response systems - for example, of different companies - can be connected to a single automatic call distribution system.

Given a request for reservation by the interactive voice response system, the status of at least one of the agents or, respectively, of the agent communication terminal equipment of the automatic call distribution system can be advantageously interrogated, and the request for reserving an agent or, respectively, agent communication terminal equipment can be implemented dependent on the currently interrogated status of the at least one agent or, respectively, agent communication terminal equipment - claim 4. This means that a status inquiry can be implemented before a request for reserving a free agent or, respectively, agent communication terminal equipment but a status inquiry need not necessarily precede. The inquiry of the status of the agent or, respectively, agent communication terminal equipment can trigger a great variety of successor agents. For example, a non-availability of agent or, respectively, agent communication terminal equipment is communicated to the communication terminal equipment connected to the interactive voice response system, this communication terminal equipment subsequently, for example, depositing a call-back request at the interactive voice response system in order - insofar as an agent or, respectively, agent communication terminal equipment is available - to set up a connection to the affected communication terminal equipment or some arbitrary other communication terminal equipment that has communicated a call-back request to the interactive voice response system and to connect this to the reserved agent communication terminal equipment.

According to another advantageous development of the invention, the interactive voice response system cyclically interrogates the status of at least one agent or, respectively, agent communication terminal equipment of the automatic call distribution system, and a request for reserving an agent or, respectively, agent communication terminal equipment is implemented dependent on the interrogated statuses of the agents or, respectively, agent communication terminal equipment - claim 4. Given a cyclical, i.e., periodic interrogation of the status of the agents or, respectively, agent communication terminal equipment, the reservation given a connection request of a communication terminal equipment or given the presence of a call-back request can be initiated given availability of the affected communication terminal equipment.

Advantageously, the transfer of the affected communications terminal equipment to the reserved agent communication terminal equipment in the communication system is effected by performance features of call-back and transfer initialized by the interactive voice response system - claim 5. The telephone number of the reserved agent communication terminal equipment is to be co-supplied for the call-back, whereby this is communicated by the message exchange described below.

According to another advantageous development of the invention, a call back request communicated from the affected communication terminal equipment - given agents or, respectively, agent communication terminal equipment that are not currently available - is marked in the interactive voice response system with the telephone number information of the affected communication terminal equipment and an automatic call back is initiated with the assistance of a further request for reservation of an available agent or, respectively, agent communication terminal equipment, whereby the connection to the reserved agent or, respectively, agent communication terminal equipment is produced first and a call back connection to the affected communication terminal equipment is subsequently produced and handed over - claim 6. The call back request, alternatively, can be stored in an

auxiliary means - for example, a host computer - that is additionally connected to the local network.

Advantageously, the inquiries are realized by requests and acknowledgments of these requests - claim 7. A request or, respectively, an acknowledgment by a request or, respectively, acknowledgment function code is also advantageous, as is a version information indicating the current version of the equipment communicating the request or, respectively, acknowledgment, an identification identifying an automatic call distribution system, an identification identifying an interactive voice response system, a reference information that unambiguously identifies a request and at least one request or, respectively, acknowledgment-dependent parameter - claim 8. All requests and acknowledgments described below are structured according to this format. The different requests or, respectively, acknowledgments only differ on the basis of the indicated function code as well as in the nature and quantity of the parameters.

Advantageous developments of the individual requests such as logon requests, log off requests, status requests, reservation request and enable request as well as the appertaining acknowledgments are described in patent claims 9-16. Advantageous developments of a communication arrangement for the involvement of functions of an automatic call distribution system in an interactive voice response system may be derived from claims 17 and 18.

The inventive method or, respectively, the inventive communication arrangement is explained in greater detail below with reference to two block circuit diagrams and a flowchart.

Thereby shown are:

Figure 1 the inventive communication arrangement shown in a block circuit diagram;

Figure 2 the structure of requests or, respectively, acknowledgments shown in a block circuit diagram;

Figure 3 a possible executive sequence scenario shown in a flowchart.

Figure 1 shows an inventive communication arrangement KA wherein an interactive voice response system IVR and an automatic call distribution system ACD is connected to a communication system KS, whereby the interactive voice response system IVR is referred to below as IVR system IVR and the automatic call distribution system ACD is referred to below as ACD system. The communication system can be part of a communication network (not shown), whereby these are connected to one another via trunk lines (not shown). For connecting the ACD system ACD to the communication system KS, an ACL interface ACL is respectively provided therein, whereby the ACL interface ACL in the communication system KS is realized in an indicated administration and maintenance server ISP and in an ACL unit ACL-E in the ACD system ACD. The abbreviation ACL stands for applications, activity link and means that a communication exchange for an application-dependent call control is link-controlled via this ACL interface ACL. A controller ST wherein the automatic call distribution functions are realized is provided as application-dependent connection controller in the ACD system ACD.

A control means ST that is connected to a switching matrix KF and to the indicated administration and maintenance server ISP is provided in the communication system KS for the switching-oriented as well as administration and maintenance-oriented control. In addition to the critical switching and administration and maintenance-oriented programs (not shown), a program structure DGV for a collaboration with the ACD system ACD is implemented in the control means ST.

With the assistance of the control means ST, for example, a group terminal SA for the connection of agent communication terminal equipment AKE is configured in the switching matrix KF. The agent communication terminal equipment AKE allocated to a group terminal SA, for example, forms a group G of agent communication terminal equipment AKE. The agent communication terminal equipment AKE and further communication terminal equipment KE

connected to the communication system KS are connected to a subscriber line module SLM that is in turn connected to the switching matrix KF. The physical and procedural matching of the internal communication system conditions to the specific requirements of the communication terminal equipment - for example ISDN conditions - occurs in the subscriber line modules SLM.

An IVR system IVR is additionally connected to this subscriber line module SLM formed, for example, by a plurality of connection modules. A subscriber line module SLM is provided in the IVR system IVR for matching to the internal system conditions. The interface between the communication system KS and the IVR system IVR is realized, for example, according to the analog a/b telephony interface a/b or according to a PCM multiplex interface - for example by a PCM30 system - or, alternatively, according to the ISDN base or primary interface S0/S2. The realization is essentially dependent on the type of communication terminal equipment KE, AKE connected to the communication system KS and on their plurality, i.e. the ISDN primary interface S2 or a PCM multiplex interface PCM is advantageous given larger communication systems KS.

Both in the automatic call distribution system ACD as well as in the IVR system IVR, a central controller ST is provided wherein an inquiry routine ANR realized program-oriented is respectively implemented in addition to the routines realizing the critical functions of automatic call distribution or, respectively, voice response. For the procedural and physical connection of the ACD system ACD and of the IVR system IVR to a local network LAN, a respective network interface unit ALAN is provided in these. The network interface unit ALAN is respectively connected at the system side to the controller ST of the IVR or, respectively, ACD system IVR, ACD. A respective communication terminal KA is realized for connection to the local network LAN. The local network LAN can be formed by a bus or ring or by a star network. Network access methods such as, for example, the CSMA/CD (carrier sense multiple access with collision detection) or the token ring access method are thereby possible. Both represent methods standardized

according to ANSI/IEEE for access to a local bus, star or ring network. The interface means ALAN is to be realized in conformity with the local network LAN employed. Given, for example, a local bus network, the interface means ALAN is to be realized in view of the access protocol and of the physical embodiment of the communication connection KA according to IEEE Standard 802.3 based on the CSMA/CD method. The interface means ALAN, further, match the information communicated via the local network LAN to the internal conditions of the IVR or, respectively, ACD system IVR, ACD in view of their physical and procedural properties, whereby the internal conditions can be the same for both systems IVR, ACD. The IVR system IVR and the ACD system ACD can be combined in a "call center CC" - indicated by a broken line in Figure 1.

Let it be assumed for the exemplary embodiment that a communication terminal equipment KE(X) sets up a connection to the IVR system IVR - indicated in Figure 1 by a dotted line referenced 1). Let it also be assumed that, following a voice presentation of the IVR system IVR, different information are called at this communication terminal equipment KE(X) by keyboard inputs, these being communicated to the communication terminal equipment KE(X) as voice information spi. Let it also be assumed for this exemplary embodiment that the IVR system IVR cannot automatically supply an information requested by the communication terminal equipment KE(X) or, respectively, subscriber but requires an information person, i.e. an agent A or, respectively, an agent communication terminal equipment AKE for this purpose. In order to obtain the involvement of an agent or, respectively, of an automatic call distribution function, for example, the IVR system IVR is informed by the communication terminal equipment KE(X) by a specific keyboard input - for example, the numeral 20 - that an agent A is to be involved for information that the interactive voice response system cannot supply.

The inquiry routine ANR implemented in the controller ST of the IVR system IVR subsequently directs an inquiry realized by requests a and acknowledgments q to the automatic call distribution system ACD via the local

network LAN. What these messages effect is described in a following chapter. The general inquiry is indicated with dot-dashed lines references 2) in Figure 1. After reserving an available, free agent A or, respectively, a free agent communication terminal equipment AKE, the inquiry routine ANR implemented in the controller ST of the IVR system IVR activates the performance feature of call back and transfer for the affected communicated terminal equipment KE(x), to which end the telephone number of the reserved agent communication terminal equipment AKE communicated in the framework of the inquiry is provided - indicated in Figure 1 by a dot-dashed line referenced 3). Due to the activation of the two performance features of call back and transfer, the communication system KS effects a transfer of the communication terminal equipment KE(X) from the IVR system IVR to the reserved agent A or, respectively, the reserved agent communication terminal equipment AKE - indicated by a dotted line referenced 4) in Figure 1. Given this procedure, the ACD system ACD and the communication system KS are minimally loaded.

The inquiries with respect to an available agent or, respectively, an agent communication terminal equipment AKE are realized with the greatest variety of requests a and acknowledgments q which are based on a uniform request/acknowledgment format. This uniform request/acknowledgment format is schematically shown in Figure 2. The message-oriented requests a or, respectively, acknowledgments q comprise a first field F1 in which a request or, respectively, acknowledgment function code fc is entered. The type of request a or acknowledgment q is indicated by this request or, respectively, acknowledgment function code sc. A version information vi can be optionally entered into a second field f2, this indicating the current version of the system - either the IVR system IVR or the ACD system ACD - that communicates the request or, respectively, the acknowledgment a, q. The optionally insertable version information vi serves for tracing and diagnostic purposes and has no significance for an evaluation or, respectively, interpretation of a request a or, respectively, of an acknowledgment q.



An identification acd-id, ivr-id that identifies an ACD system ACD or, respectively, an IVR system IVR is entered into a third or, respectively, fourth field F3, F4. For example, the names, i.e. the designations of the respective system IVR, ACD, are provided as identifications acd-id, ivr-id. For unambiguous identification of a request a or, respectively, of an acknowledgment q, a reference information ri or, respectively, a reference number is entered into a fifth field F5. This reference information ri is entered into acknowledgments q that acknowledge a request a in order to assure the affiliation of the acknowledgment q to the respective requests a. In a last field F, request-dependent or, respectively, acknowledgment-dependent parameters p are entered. Dependent on the type of request a or, respectively, of acknowledgment q, different parameters p are inserted into the field F that comprises only a few bytes or a plurality of bytes as well.

The possible requests a as well as acknowledgment q directed from the IVR system IVR to the ACD system ACD are listed below. A different function code fc that, for example, is indicated by a four-place ASCII value (0100, 0200...) is thereby provided for each different, listed request a or, respectively, acknowledgment q.

#### Logon Request (lona):

Each IVR system IVR that wishes to communicate with an ACD system ACD via the local network LAN must log on at this network with a logon request lona and must be authorized with a password pass. The ACD system ACD checks whether the communicated identification ivr-id is known to it and whether the password pass that has likewise been forwarded or, respectively, the access protection information is allocated to this identification ivr-id.

#### Logon Acknowledgment long:

As a reply to a logon request lona, the ACD system ACD communicates a logon acknowledgment long to the IVR system IVR via the local network LAN. A result information ei inserted as parameter p in the field F provides the IVR system IVR with information as to whether its application is accepted or why this is being

rejected. Possible grounds for rejection are, for example, an invalid password pass, an known identification ivr-id or an application was already implemented.

Log Off Request lofa:

The IVR system IVR logs off at the ACD system ACD with this log off request.

Log Off Acknowledgment logq:

The log off request lofa is acknowledged by the ACD system ACD with this log off acknowledgment logq. A result information ei inserted as parameter p provides information whether the logon request lofa was accepted or, respectively, for what reasons it is being rejected. Grounds for rejection, for example, correspond to those in the logon acknowledgment lonq.

Status Request staa:

The term status of a group of agents A or, respectively, group of agent communication terminal equipment AKE is requested at the ACD system ACD with this status request staa. For example, the group G is not directly indicated; rather, a service information si is inserted into the field F as parameter p. The service information si, for example, is represented by service numbers, whereby the service numbers, for example, represent different technical fields and different service numbers can be allocated to a group G of agents A.

Status Acknowledgment staq:

The status acknowledgment staq represents the reply message to a status request staa and is communicated to the IVR system IVR from the ACD system ACD via the local network LAN. The following information can be inserted as parameters p into the field F:

- a result information ergi that indicates that admissibility of the status request staa or, respectively, provides information whether the status request staa is accepted or, respectively, rejected. The reasons, for example, are those in the aforementioned acknowledgments lonq, lonfq.

- a status information zusi indicates the operating status in which the ACD system ACD is, for example day/night operation or in an initialization condition.
- the number of agents A or, respectively, agent communication terminal equipment AKE logged on at the ACD system ACD is indicated by a reported information amei.
- the number of free agents A or, respectively, of free agent communication terminal equipment AKE of the group G defined by the respective service information si is indicated by an agent information agi.
- a busy information beli indicates the number of busy agents A or, respectively, agent communication terminal equipment AKE.
- an availability information vfbi indicates the number of unavailable agents A or, respectively, agent communication terminal equipment AKE.
- Further, additional information such as, for example, the agents A busy with post-processing or statistical information about the number of waiting calls, etc., can be optionally inserted. The information listed above are evaluated or, respectively, interpreted in the IVR system IVR and a successor action can be derived. A significant successor action or, respectively, decision is to be seen therein as to whether a free agent A or, respectively, a free agent communication terminal equipment AKE at the moment is to be reserved or not reserved.

Reservation Request resa:

This reservation request resa serves for reserving agents A or, respectively, agent communication terminal equipment AKE that is subsequently transferred to the communication terminal equipment KE(x) currently calling at the IVR system IVR with the assistance of the communication system KS.

A reservation request resa can contain the following information as parameters p in the field F:

- an arbitrary agent A or, respectively, arbitrary agent communication terminal AKE is requested for a reservation from a group G of agents or, respectively, agent communication terminal equipment AKE defined by the service information si, being requested by an inserted service information si. A reservation means that the respective agent A or, respectively, the respective agent communication terminal equipment AKE will no longer be transferred to further incoming calls.
- The reservation of a specific person, i.e. specific agent A, [...] by the agent identification agid is requested with an inserted agent identification agid, whereby the allocated agent communication terminal equipment AKE is automatically defined.
- A waiting information wari indicates the time span, for example in seconds, that should be maximally waited when a specific agent A or, respectively, an arbitrary agent A of a group G cannot be immediately reserved. After the laps of this time span, a reservation of a specific or arbitrary agent A is foregone.
- The IVR system IVR is informed of a reservation of the respective agent or, respectively, agent communication terminal equipment AKE that is not immediately possible on the basis of an inserted status information stai.

#### Reservation Acknowledgment resq:

This message represents the acknowledgment in response to a reservation request resa. The following information are inserted as parameter p into the field F.

- A result information regi that indicates the admissibility of the reservation request resa or, respectively, provides information whether the reservation request resa is accepted or rejected.
- A service information si that is taken from the reservation request resi.

- An agent information agid with which a specific person, i.e. a specific agent A or, respectively, a specific agent communication terminal equipment AKE is defined.
- The IVR system IVR is informed by an agent status information asti as to what status the requested agent A or, respectively, the requested agent communication terminal equipment AKE has. Possible statuses are, for example, agent A is not logged on, agent A is not available, agent A is already reserved, etc.

Release Request frea:

This release request frea can be communicated both giving ongoing reservation of an agent A or a reservation of an agent A that has already ended, whereby a release request frea respectively effects the immediate release or an agent A or, respectively, agent communication terminal equipment AKE that is reserved or is being reserved.

Display Request anza:

As a result of a display request anza, a text that is sent along by the IVR system IVR can be communicated via the ACD system ACD to a specific agent or, respectively, to a specific agent communication terminal equipment, whereby an attention tone can be acoustically reproduced at the respective agent communication terminal equipment AKE. In order to avoid collisions with other display possibilities, this display request anza should only be employed for agent communication terminal equipment AKE that are already reserved. The agent identification agid of the defined agent A or, respectively, agent communication terminal equipment AKE, the information text to be communicated and, optionally, a time information zei and an attention information aufi can be inserted in the field F as parameters p. The timing information zei indicates the display time of the information text at the specific agent communication terminal equipment AKE, and the attention information effects that an attention tone is

acoustically reproduced at the specific agent communication terminal equipment AKE.

With reference to a flowchart, Figure 3 shows a possible executive sequence scenario wherein the IVR system IVR first reports at the ACD system ACD with a logon request lona and the admissibility of the logon is acknowledged by a logon acknowledgment lonq. In order to determine the general status of agents A or, respectively, agent communication terminal equipment AKE of a group G, a status request staa with a service information si wherein the affected group G is addressed is communicated. For example, an event information ergi that indicates a successful status inquiry is inserted in the status acknowledgment staq communicated to the IVR system IVR. For example, an agent information agi indicating the plurality of free agents A in the group G is also inserted, for example, the number 3 for three free agents. Subsequently, the IVR system IVR communicates a reservation request resa with the same service information si to the ACD system ACD, whereupon one of the free agents A is reserved therein. The reservation is acknowledged by a reservation acknowledgment resq, wherein a successful reservation is indicated as event information ei and a telephone number information RNI is inserted with which the reserved agent A or, respectively, the reserved agent communication terminal equipment AKE is addressed. In order to communicate an information about the preceding dialog of the calling communication terminal equipment KE(X) with the IVR system IVR to the agent A, the registrations are inserted into a display request anza as information text and are communicated via the ACD system ACD and the communication system KS to the reserved agent AKE - indicated by a broken line in Figure 3.

The following variations are no longer shown in Figure 3 but can nonetheless be implemented on the basis of the request a and acknowledgment q indicated there. When no agent A is free, the IVR system IVR informs the calling communication terminal equipment KE(X) of this and offers two alternatives, namely waiting until an agent A is free or activating a call back. In both cases, the

IVR system IVR communicates status requests staa in order to find out whether an agent A has become free. When one has become free, the reservation of the free agent A is initiated giving a waiting, calling communication terminal equipment KE(X), and, given an activation of the call back, a connection to the originally calling communication terminal equipment KE(X) is previously set up, whereby a connection to the affected communication terminal equipment KE(X) or an arbitrarily other communication terminal equipment that informed the IVR system IVR of a call back wish is set up and this is subsequently connected to the reserved agent communication terminal equipment AKE.

A completely different procedure is comprised therein that the IVR system IVR cyclically, i.e. periodically, communicates status requests staa to the ACD system ACD in order to determine whether agents A in which groups G are busy or, respectively, free. According to a first version, the reservation of one of the free agents A is immediately initiated given the presence of an allocation wish of an agent A of a communication terminal equipment KE and the connection is then reconnected through the IVR system IVR. Given an allocation wish of a free agent A of a communication terminal equipment KE(X) that has already cleared down the connection to the IVR system IVR, this sets up the connection when a free agent A has been found, the free agent A is subsequently reserved and the connection to this free agent is transferred.

## Patent Claims

1. Method for involving functions of an automatic call distribution system (ACD) in an interactive voice response system (IVR) that is called and controlled by communication terminal equipment (KE) of the communication network (KN), whereby the interactive voice response system (IVR) and the automatic call distribution system (ACD) are connected to a communication system (KS) of a communication network (KN) and at least one agent communication terminal equipment (AKE) connected to at least one communication system (KS) is allocated to the automatic call distribution system (ACD),

- whereby the interactive voice response system (IVR) and the automatic call distribution system (ACD) are directly coupled;
- whereby the interactive voice response system (IVR) can be influenced such by a communication terminal equipment (KE) that this communicates a request for reserving (resa, resq) of an available agent (A) or, respectively, agent communication terminal equipment (AKE) to the automatic call distribution system (ACD); and
- whereby, given a reservation of a requested agent (A) or, respectively, agent communication terminal equipment (AKE), the communication system (KS) is influenced such that the affected communication terminal equipment (KE) is transferred to the reserved agent communication terminal equipment (AKE).

2. Method according to claim 1, characterized in that the interactive voice response system (IVR) and the automatic call distribution system (ACD) are coupled via a local network (LAN), whereby interfaces (KA) for connection to the local network (LAN) are provided in the interactive voice response system (IVR) and in the automatic call distribution system (ACD).



4. Method according to claim 1 or 2, characterized in that the interactive voice response system (IVR) cyclically interrogates the status of at least one agent (A) or, respectively, agent communication terminal equipment (AKE) of the automatic call distribution system (ACD); and in that a request (resa, resq) for reserving an agent (A) or, respectively, agent communication terminal equipment (AKE) is implemented dependent on the interrogated statuses of the agents (A) or, respectively, of the agent communication terminal equipment (AKE).

5. Method according to one of the claims 1 through 4, characterized in that the transfer of the affected communication terminal equipment (KE(x)) to the reserved agent communication terminal equipment (AKE) in the communication system (KS) is effected by performance features of call back and transfer initialized by the interactive voice response system (IVR).

6. Method according to one of the claims 1 through 5, characterized in that, given agents (A) or, respectively, agent communication terminal equipment (AKE) currently not available, a call back request communicated from the affected communication terminal equipment (KE(x)) is noted in the interactive voice response system (IVR) with the telephone number information (ri) of the affected communication terminal equipment (KE(x)); and in that an automatic call back is

initiated with the assistance of a further inquiry for reserving an available agent (A) or, respectively, agent communication terminal equipment (AKE), whereby the connection to the reserved agent communication terminal equipment (AKE) is produced and transferred first and a call back connection to the affected communication terminal equipment (KE(X)) is subsequently produced and transferred.

7. Method according to one of the claims 1 through 6, characterized in that requests (a) and acknowledgments (q) are provided for requests between the interactive voice response system (IVR) and the automatic call distribution system (ACD).

8. Method according to claim 7, characterized in that a request or, respectively, an acknowledgment (a, q) [...] by

- a request or, respectively, acknowledgment function code (fc),
- a version information (vi) indicating the current version of the system (IVR, ACD) communicating the request or, respectively, acknowledgment () [sic],
- an identification (acd-id) identifying an automatic call distribution system (ACD),
- an identification (ivr-id) identifying an interactive voice response system (IVR),
- a reference information (ri) unambiguously identifying a request (a), and
- at least one request or, respectively, acknowledgment-dependent parameter (p).

9. Method according to one of the claims 1 through 8, characterized in that a logon request (lona) logging the interactive voice response system (IVR) on at the automatic call distribution system (ACD) is communicated, this being answered by the automatic call distribution system (ACD) with a logon acknowledgment

(lonq), whereby an access protection information (pass) is inserted as parameter (p) in the logon request (lona) and the check result of the logon request (lona) is inserted in the logon acknowledgment (lonq).

10. Method according to one of the claims 1 through 9, characterized in that a log off request (lofa) logging the interactive voice response system (IVR) off at the automatic call distribution system (ACD) is communicated, this being answered by the automatic call distribution system (ACD) with a log off acknowledgment (lofq), whereby an access protection information (pass) is inserted in the log off request (lofq) as parameter (p) and the check result of the log off request (lofa) is inserted in the log off acknowledgment (lofq).

11. Method according to one of the claims 1 through 10, characterized in that, in the framework of an inquiry (resa, resq) for reserving an agent (A) or, respectively, agent communication terminal equipment (AKE), a status request (staa) requesting the current status of an automatic call distribution system (ACD) is communicated from the interactive voice response system (IVR) to the automatic call distribution system (ACD), whereby at least an agent information (agid) identifying an agent (A) or a service information (si) indicating a group (G) of agents (A) or, respectively, an agent communication terminal equipment (AKE) or a group (G) of agent communication terminal equipment (AKE) is inserted as parameter (p).

12. Method according to claim 11, characterized in that, after communication of a status request (staa), the automatic call distribution system (ACD) communicates a status acknowledgment (staq), whereby, dependent on the status request (staa),

- a result information (ergi) indicating the check of the allowability of the status request (staa), and/or

- a status information (zusi) indicating the operating condition of the automatic call distribution system (ACD) and/or
  - an agent information (agi) indicating the number of free agents (A) or, respectively, agent communication terminal equipment (AKE), and/or
  - a report information (arnei) indicating the number of logged on agents (A) or, respectively, agent communication terminal equipment (AKE), and/or
  - a busy information (beli) indicating the number of busy agents or, respectively, agent communication terminal equipment (AKE), and/or
  - an availability information (vfbi) indicating the number of unavailable agents (A) or, respectively, agent communication terminal equipment (AKE)
- can be inserted into a status acknowledgment (staq).

13. Method according to one of the claims 1 through 12, characterized in that a reservation request (resa) effecting the reservation of agents (A) or, respectively, agent communication terminal equipment (AKE) is communicated from the interactive voice response system (IVR) to the automatic call distribution system (ACD), whereby

- a service information (si) requesting an arbitrary available agent (A) or, respectively, an agent communication terminal equipment (AKE) of a group (G) of agents (A) or, respectively, agent communication terminal equipment (AKE-G) or
  - an agent identification (agid) requesting a specific person or, respectively, agent (A), and/or
  - a waiting information (wari) indicating the time span for waiting for a specific agent (A) or one of a group (G) of agents (A) or, respectively, agent communication terminal equipment (AKE) and/or
  - a status information (stai) indicating the reporting or non-reporting of the status of the reservation request (resa)
- can be inserted as parameters (p).

14. Method according to claim 13, characterized in that, after communication of a reservation request (resa), the automatic call distribution system (ACD) communicates a reservation acknowledgment (resq), whereby, dependent on the reservation request (resa),

- an event information (ergi) indicating the check of the allowability of the reservation request (resa),
- a service information (si) indicating the group (G) of agents (A) or, respectively, agent communication terminal equipment (AKE-G),
- an agent identification (agid) indicating the reservation of the requested agent (A),
- and a telephone number information (rni) indicating the telephone number of the reserved agent (A) or, respectively, agent communication terminal equipment (AKE) or
- an agent status information (asti) indicating the status of the requested agent (A) or, respectively, agent communication terminal equipment (AKE)

is inserted into a reservation acknowledgment (staq).

15. Method according to claim 13 or 14, characterized in that a release request (frea) releasing a reserved agent (A) or, respectively, an agent communication terminal equipment (AKE) can be communicated from the interactive voice response system (IVR) to the automatic call distribution system (ACD), whereby an agent identification (agid) indicating the identification of the agent (A) or, respectively, agent communication terminal equipment (AKE) to be released is inserted as parameter (p).

16. Method according to one of the claims 1 through 15, characterized in that the interactive voice response system (IVR) can communicate a display request (anza) effecting a display at a specific agent communication terminal equipment (AKE) to the automatic call distribution system (ACD), whereby

- an agent identification (agid) identifying a specific agent (A) or, respectively, agent communication terminal equipment (AKE),
  - an information (text) to be displayed at the agent communication terminal equipment (AKE) and, optionally,
  - a timing information (zei) indicating the display duration at the agent communication terminal equipment (AKE), and/or
  - an attention information (aufi) effecting an attention tone and/or an attention display at the affected agent communication terminal equipment (AKE)
- is inserted as parameter (p).

17. Communication arrangement for involving functions of an automatic call distribution system (ACD) into an interactive voice response system (VR) that is called and controlled by communication terminal equipment (KE) of a communication network (KN),

- whereby the interactive voice response system (IVR) and the automatic call distribution system (ACD) are connected to a communication system (KS) of the communication network (KN), whereby at least one agent communication terminal equipment (AKE) connected to at least one communication system (KS) is allocated to the automatic call distribution system (ACD),
- whereby an interface (KA) for connection to a local network (LAN) (ACD) is realized in the interactive voice response system (IVR) and in the automatic call distribution system;
- whereby the two interfaces (KA) are connected to one another via a local network (LAN);
- whereby program-oriented means are provided in the interactive voice response system (IVR) and in the automatic call distribution system (ACD), these being capable of being influenced such by a communication terminal equipment (KE) connected to the interactive voice response system (IVR)

that the interactive voice response system (IVR) communicates a request for reserving an available agent (A) or, respectively, agent communication terminal equipment (AKE) to the coupled, automatic call distribution system (ACD);

- whereby means for reserving available agents (A) or, respectively, agent communication terminal equipment (AKE) and for communicating the reservation to the interactive voice response system (IVR) are provided in the automatic call distribution system (ACD); and
- whereby means for influencing the allocated communication system (KS) such are provided in the interactive voice response system (IVR) that the affected communication terminal equipment (KE) is transferred to the reserved agent communication terminal equipment (AKE).

18. Communication arrangement according to claim 17, characterized in that program-oriented means are provided in the interactive voice response system (IVR) for forming log on, log off, status, reservation, display and release requests (lona, lofa, resa, anza, frea) and program-oriented means are provided in the automatic call distribution system (ACD) for forming logon, log off, status and reservation acknowledgments (lonq, lofq, staq, resq).

## Abstract

### Method For Involving Functions Of An Automatic Call Distribution System Into An Interactive Voice Answering System

An interactive voice response system (IVR) coupled to an automatic call distribution system (ACD) is influenced such by a communication terminal equipment (KE(X)) that this communicates a request for reserving (resa, resq) an available agent (A) to the automatic call distribution system (ACD). Given a reservation of a requested agent (A), the allocated communication system (KS) is influenced such that the communication terminal equipment (KE) is transferred to the reserved agent communication terminal equipment (AKE).

Figure 1



BOX PCT

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UNDER THE PATENT COOPERATION TREATY-CHAPTER II

5 APPLICANTS: Reinhard Knitl et al. DOCKET NO: P98,3211  
SERIAL NO: GROUP ART UNIT:  
EXAMINER:

INTERNATIONAL APPLICATION NO: PCT/DE97/01730

INTERNATIONAL FILING DATE: 13 August 1997

10 INVENTION: **METHOD FOR INCORPORATING FUNCTIONS OF AN  
AUTOMATIC CALL DISTRIBUTION SYSTEM INTO AN  
INTERACTIVE VOICE ANSWERING SYSTEM**

15 Assistant Commissioner for Patents,  
Washington, D.C. 20231

**SUBMISSION OF DRAWINGS**

Applicants herewith submits two sheets (Figs. 1-3) of drawings for  
the above-referenced PCT application.

Respectfully submitted,

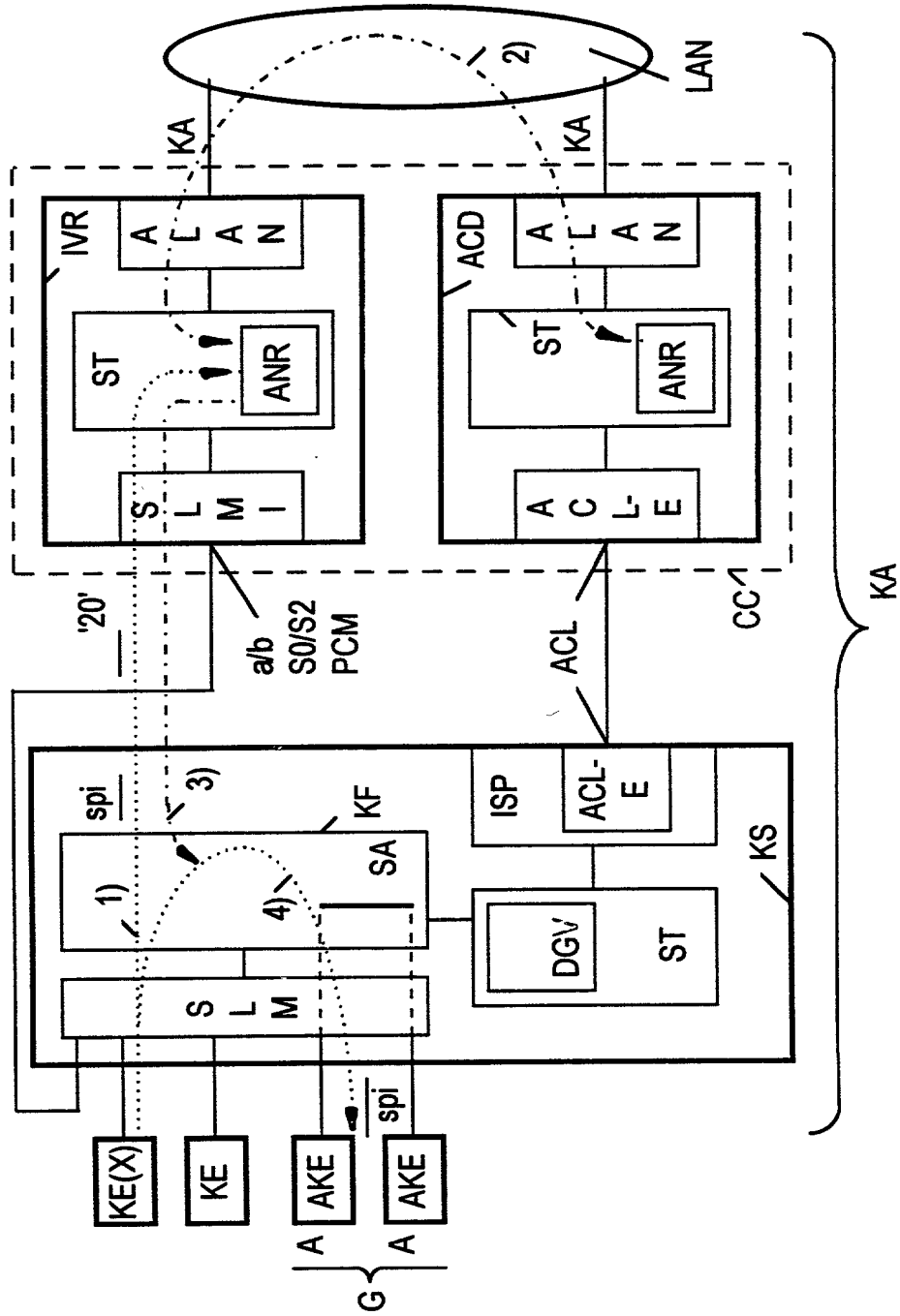
20

  
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FIG 1



2/2

FIG 2

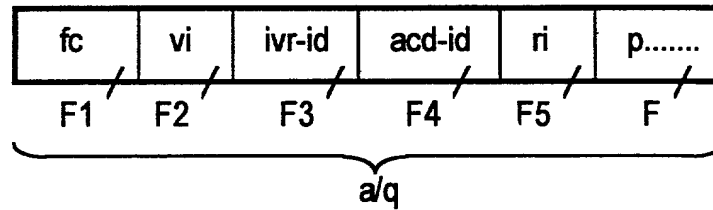
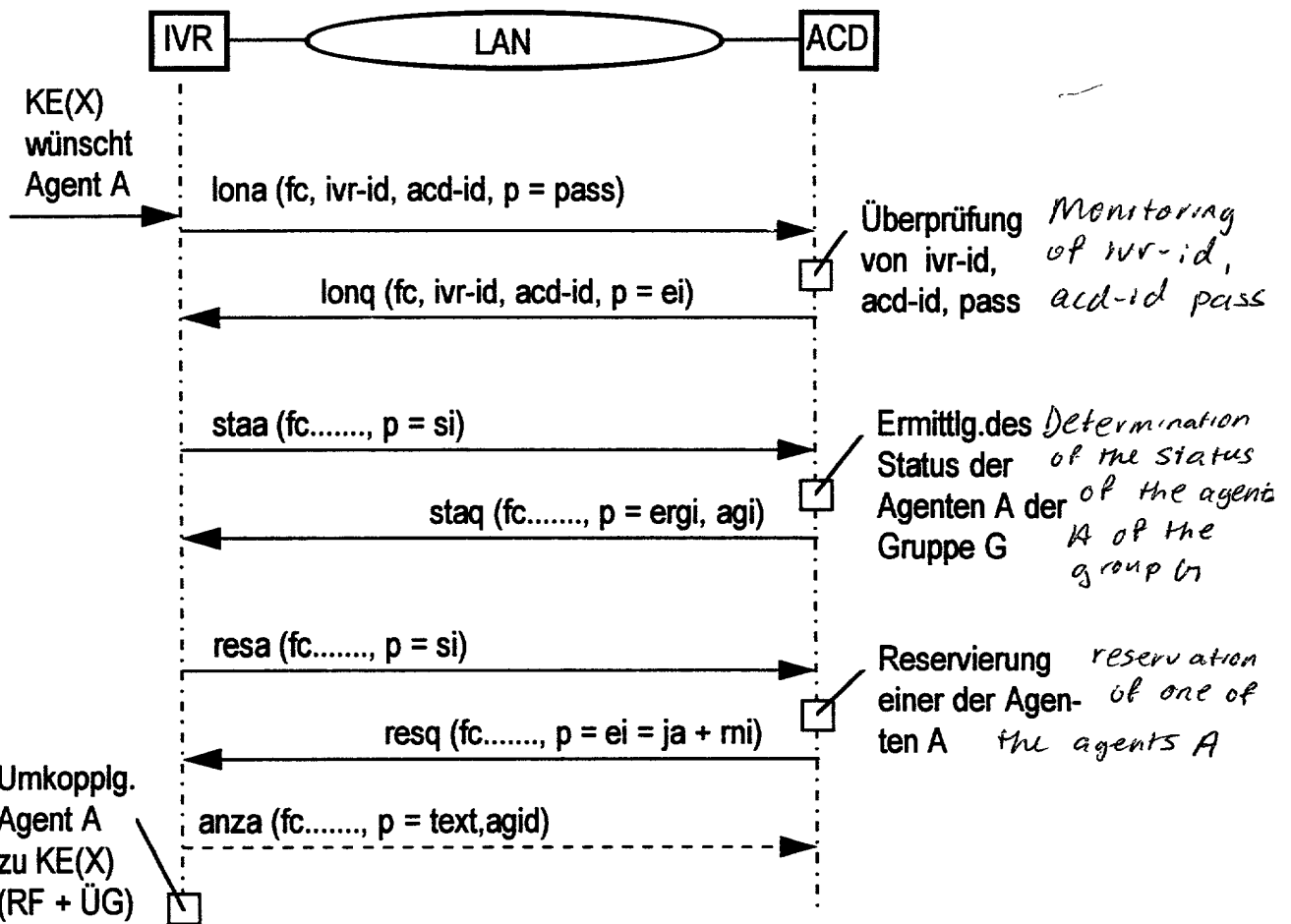


FIG 3



09/254101-5260

Recoupling  
Agent A  
to KE(X)  
(RF + ÜG)

# Declaration and Power of Attorney For Patent Application

## Erklärung Für Patentanmeldungen Mit Vollmacht

### German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

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Verfahren zum Einbeziehen von  
Funktionen eines automatischen  
Anrufverteilungs-Systems in ein  
interaktives Sprachbeantwortungs-  
System

deren Beschreibung

(zutreffendes ankreuzen)

☒ hier beigefügt ist.

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PCT internationale Anmeldung

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Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an.

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

the specification of which

(check one)

☐ is attached hereto.

☐ was filed on \_\_\_\_\_ as

PCT international application

PCT Application No. \_\_\_\_\_

and was amended on \_\_\_\_\_

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

# German Language Declaration

Prior foreign applications  
Priorität beansprucht

Priority Claimed

196 35 329.7    Germany    30. August 1996  
(Number)    (Country)    (Day Month Year Filed)  
(Nummer)    (Land)    (Tag Monat Jahr eingereicht)

☒    ☐  
Yes    No  
Ja    Nein

\_\_\_\_\_  
(Number)    (Country)    (Day Month Year Filed)  
(Nummer)    (Land)    (Tag Monat Jahr eingereicht)

☐    ☐  
Yes    No  
Ja    Nein

\_\_\_\_\_  
(Number)    (Country)    (Day Month Year Filed)  
(Nummer)    (Land)    (Tag Monat Jahr eingereicht)

☐    ☐  
Yes    No  
Ja    Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

(Application Serial No.)  
(Anmeldeseriennummer)

(Filing Date)  
(Anmeldedatum)

(Status)  
(patentiert, anhängig,  
aufgegeben)

(Status)  
(patented, pending,  
abandoned)

(Application Serial No.)  
(Anmeldeseriennummer)

(Filing Date)  
(Anmeldedatum)

(Status)  
(patentiert, anhängig,  
aufgeben)

(Status)  
(patented, pending,  
abandoned)

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## German Language Declaration

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POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

And I hereby appoint  
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(Supply similar information and signature for third and subsequent joint inventors).

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19

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601000-104300

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